

sequence listing

<110> CreaGene Inc.
 <120> METHOD FOR IMPROVING GENETIC STABILITY OF FOREIGN INSERT
 NUCLEOTIDE SEQUENCE IN RECOMBINANT SINGLE-STRANDED RNA VIRUS
 <130> CreaGene-USA-1
 <150> KR 2001-6229
 <151> 2001-02-08
 <160> 95
 <170> KopatentIn 1.71
 <210> 1
 <211> 300
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> SIV gag-100

<400> 1
 agccccgagaa cattaaatgc ctgggtaaaa ttgatagagg aaaagaaatt tggagcagaa 60
 gtagtgccag gatttcaggc actgtcagaa ggttgcaccc cctatgacat taatcagatg 120
 ttaaattgtg tgggagacca tcaagcggct atgcagatta tcagagatat tataaacgag 180
 gaggctgcag attgggactt gcagcaccca caaccagctc cacaacaagg acaacttagg 240
 gagccgtcag gatcagatat tgcaggaaca actagttcag tagatgaaca aatccagtgg 300
 300

<210> 2
 <211> 300
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> SIV gag-100/M

<400> 2
 agtccaagaa cattaaatgc atgggtaaaa ttaatagaag aaaaaaaatt tggagcagaa 60
 gtagttccag gatttcaagc attatcagaa ggttgtactc catatgatat taatcaaag 120
 ttaaattgtg taggagatca tcaagcagct atgcaaatta taagagatat tataaatgaa 180
 gaagctgcag attgggattt acaacatcca caaccagctc cacaacaagg acaattaaga 240
 gaaccttcag gatcagatat tgcaggaaca actagttcag tagatgaaca aattcaatgg 300
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<210> 3
 <211> 342
 <212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> SIV gag-114

<400> 3

ccagtacaac aaataggtgg taactatgtc cacctgccat taagcccgag aacattaaat	60
gcctgggtaa aattgataga ggaaaagaaa tttggagcag aagtagtgcc aggatttcag	120
gcactgtcag aaggttgcac cccctatgac attaatcaga tggttaaattg tgtgggagac	180
catcaagcgg ctatgcagat tatcagagat attataaacg aggaggctgc agattgggac	240
ttgcagcacc cacaaccagc tccacaacaa ggacaactta gggagccgtc aggatcagat	300
attgcaggaa caactagttc agtagatgaa caaatccagt gg	342

<210> 4

<211> 501

<212> DNA

<213> Artificial Sequence

<220>

<223> SIV p27-167

<400> 4

ccagtacaac aaataggtgg taactatgtc cacctgccat taagcccgag aacattaaat	60
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gcactgtcag aaggttgcac cccctatgac attaatcaga tggttaaattg tgtgggagac	180
catcaagcgg ctatgcagat tatcagagat attataaacg aggaggctgc agattgggac	240
ttgcagcacc cacaaccagc tccacaacaa ggacaactta gggagccgtc aggatcagat	300
attgcaggaa caactagttc agtagatgaa caaatccagt ggatgtacag acaacagaac	360
cccataccag taggcaacat ttacaggaga tggatccaac tggggttgca aaaatgtgtc	420
agaatgtata acccaacaaa cattctagat gtaaaacaag ggccaaaaga gccatttcag	480
agctatgtag acaggttcta c	501

<210> 5

<211> 450

<212> DNA

<213> Artificial Sequence

<220>

<223> SIV p27-150

<400> 5

ccagtacaac aaataggtgg taactatgtc cacctgccat taagcccgag aacattaaat	60
gcctgggtaa aattgataga ggaaaagaaa tttggagcag aagtagtgcc aggatttcag	120

sequence listing

gcactgtcag aaggttgac cccctatgac attaatcaga tgttaaattg tgtgggagac 180
catcaagcgg ctatgcagat tatcagagat attataaacg aggaggctgc agattgggac 240
ttgcagcacc cacaaccagc tccacaacaa ggacaactta gggagccgctc aggatcagat 300
attgcaggaa caactagttc agtagatgaa caaatccagt ggatgtacag acaacagaac 360
cccataccag taggcaacat ttacaggaga tggatccaac tgggggttgca aaaatgtgtc 420
agaatgtata acccaacaaa cattctagat 450

<210> 6
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> SIV env-108

<400> 6
acttctactt ggtttggtt taatggaact agagcagaaa atagaactta tatttactgg 60
catggtaggg ataataggac tataattagt tttaaataagt attataatct aacaatgaaa 120
tgtagaagac caggaaataa gacagtttta ccagtcacca ttatgtctgg attggttttc 180
cactcacaac caatcaatga taggccaaag caggcatggt gttgggttgg aggaaaatgg 240
aaggatgcaa taaaagaggt gaagcagacc attgtcaaac atcccaggta tactggaact 300
aacaatactg ataaaatcaa tttg 324

<210> 7
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> SIV env-108/M

<400> 7
actagcactt ggttcggctt caacggaact agggcagaga acagaactta catctactgg 60
catggtaggg acaaccggac gatcatcagc ctgaacaagt actacaacct caccatgaaa 120
tgcaggagac caggaaataa gacagtgtta ccagtcacca tcatgtccgg gttggtcttc 180
cactcacagc ccatcaatga caggcccaag caggcctggt gttgggttcgg aggcaagtgg 240
aaggatgcca taaaggaggt gaagcagacc attgtcaagc atcccaggta cactggaact 300
aacaacactg acaagatcaa tttg 324

<210> 8
<211> 294
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
<223> HIV-1 env-98

<400> 8
ttaaatggca gtctagcaga agaagacata gtaattagat ctgaaaattt cacagacaat 60
gctaaaacca taatagtaca gctaaatgaa tctgtagtaa ttaattgtac aagaccaac 120
aacaatacaa gaagaagggtt atctatagga ccagggagag cattttatgc aagaagaaac 180
ataataggag atataagaca agcacattgt aacattagta gagcaaaatg gaataacact 240
ttacaacaga tagttataaa attaagagaa aaatttagga ataaaacaat agcc 294

<210> 9
<211> 294
<212> DNA
<213> Artificial Sequence

<220>
<223> HIV-1 env-98/M

<400> 9
ttaaatggca gtctagcaga agaagacata gtaattagat ctgaaaattt cacagacaat 60
gctaaaacca taatagtaca gctaaatgaa tctgtagtaa ttaattgtac aagaccaac 120
aacaatacaa gaagaagggtt atctatagga ccagggagag cattttatgc aagaagaaac 180
ataataggag atataagaca agcacattgt aacattagta gagcaaaatg gaataacact 240
ttacaacaga tcgtgatcaa gcttcgggag aagttccgga acaagacgat cgcc 294

<210> 10
<211> 249
<212> DNA
<213> Artificial Sequence

<220>
<223> HIV-1 env-83

<400> 10
ttaaatggca gtctagcaga agaagacata gtaattagat ctgaaaattt cacagacaat 60
gctaaaacca taatagtaca gctaaatgaa tctgtagtaa ttaattgtac aagaccaac 120
aacaatacaa gaagaagggtt atctatagga ccagggagag cattttatgc aagaagaaac 180
ataataggag atataagaca agcacattgt aacattagta gagcaaaatg gaataacact 240
ttacaacag 249

<210> 11
<211> 213
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
<223> HIV-1 env-71

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<400>      11
ctaaatgaat ctgtagtaat taattgtaca agacccaaca acaatacaag aagaaggtta      60
tctataggac cagggagagc attttatgca agaagaaaca taataggaga tataagacaa      120
gcacattgta acattagtag agcaaaatgg aataacactt tacaacagat agttataaaa      180
ttaagagaaa aatttaggaa taaaacaata gcc                                213

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<210>	12
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<212>	DNA
<213>	Artificial Sequence

<220>
<223> PV 2-127

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agaggagctt	gtgtggccat	tattgaagt	gataatgat	ctccaacaag	gcgtgccagt		180
aaattatttt	cagtctggaa	gataacttac	aaggacaccg	ttcagttaag	acgtaagttg		240
gagttcttta	catattcaag	gtttgacat	gagttcacct	ttgtggttac	atccaattat		300
accgatgcaa	acaatgggca	cgcactgaat	caagtttacc	agataatgta	cataccacct		360
ggggcaccga	tccttgga	g					381

<210>	13
<211>	354
<212>	DNA
<213>	Artificial Sequence

<220>
<223> PV 2-118

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ttttcagtct	ggaagataac	ttacaaggac	accgttcagt	taagacgtaa	gttggagttc		120
tttacatatt	caaggtttga	catggagttc	acctttgtgg	ttacatccaa	ttataccgat		180
gcaaacaatg	ggcacgcact	gaatcaagtt	taccagataa	tgtacatacc	acctggggca		240
ccgatccctg	gcaagcggaa	tgattacaca	tggcaaacgt	catctaacc	atcagtgttt		300
tacacttacg	gggcacctcc	agctagaata	tcagtgcctt	acgtgggcat	tgcc		354

sequence listing

<210> 14
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> PV 3-110

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gcgtgcgtcg ctattattga ggtggacaat gaacaaccaa ccacccgggc acagaaacta 120
tttgccatgt ggcgcattac atacaaagat acagtgcagt tgcgccgtaa gttggagttt 180
ttcacatact ctcgttttga catggaattc accttcgtgg taaccgcaa cttcaccaac 240
gctaataatg ggcattgcact caaccaggtg taccagataa tgtacatccc cccaggggca 300
cccacaccaa agtcatggga cgactacact 330

<210> 15
<211> 480
<212> DNA
<213> Artificial Sequence

<220>
<223> HCV core-160

<400> 15
atgagcacia atcctaaacc tcaaagaaaa accaaaagaa acaccaaccg tcgcccacia 60
gacgtcaagt tcccgggagg tggtcagatc gttggtggag ttacctgtt gccgcgcagg 120
ggccccagggt tgggtgtgag cgcgactagg aagacttccg agcggtcgca acctcgtgga 180
aggcgacagc ctatcccaa ggctcgcaa cccgagggtg ggacctgggc tcagccccggg 240
tacccttggc ccctctatgg caatgagggt ctgggatggg caggatggct cctgtcaccc 300
cgcggtcttc ggcctagttg gggccccaca gacccccggc gtaggtcgcg taatttggtt 360
aaggtcatcg atactctcac atgcggcttc gccgacctca tggggtacat tccgctcgtc 420
ggcgcccccc tagggggcgt tgccagggcc ttggcacatg gtgtccggct tctggaggac 480
480

<210> 16
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> HCV core-100

<400> 16
atgagcacia atcctaaacc tcaaagaaaa accaaaagaa acaccaaccg tcgcccacia 60

sequence listing

gacgtcaagt tcccgggagg tggtcagatc gttggtggag tttacctgtt gccgcgcagg	120
ggccccagggt tgggtgtgag cgcgactagg aagacttccg agcgggtcgca acctcgtgga	180
aggcgacagc ctatcccaaa ggctcgccaa cccgagggtg ggacctgggc tcagcccggg	240
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	300

<210> 17
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PV 2.3-131

<400> 17	
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actcgtcacg tcattcaaaa gcggacgcgg tcggagtcta cggttgagtc tttcttcgca	120
agaggagctt gtgtggccat tattgaagtg gataatgatg ctccaacaag gcgtgccagt	180
aaattatattt cagtctggaa gataactgaa ttcgagtcca caatagaatc attcttcgca	240
cgcgggggcgt gcgtcgctat tattgagggt gacaatgaac aaccaaccac ccgggcacag	300
aaactatttg ccatgtggcg cattacatac aaagatacag tgcagttgcg ccgtaagttg	360
gagtttttca catactctcg ttttgacatg gaattcacc	399

<210> 18
 <211> 336
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PV 2.3-112

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ttttcagtct ggaagataac ttacaaggac accgttcagt taagacgtaa gttggagttc	120
tttacaatatt caaggtttga catggagttc acctttgtgg ttacaggatc cgcggtgcgtc	180
gctattattg aggtggacaa tgaacaacca accacccggg cacagaaact atttgccatg	240
tggcgcatta catacaaaga tacagtgcag ttgcgccgta agttggagtt tttcacatac	300
tctcgttttg acatggaatt caccttcgtg gtaacc	336

<210> 19
 <211> 306
 <212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> HBVcs

<400> 19

ttgtgggttc acatttcctg tcttacgttt gggagacaaa ctgttcttga atatttggtg	60
tcctttggag tgtggattcg cactcctcct gcatatagac caccaaagtc ccctatctta	120
tcaacacttc cggaaactac tggtgttaga gaattcccag gatcatcaac caccagcacg	180
ggaccatgca agacttgac agctcctgct caaggaacct ctatgtttcc ctcatgttgc	240
tgtacaaaac ctacggacgg aaactgcacc tgtattccca tcccatcatc ttgggctttc	300
gcaaaa	306

<210> 20

<211> 360

<212> DNA

<213> Artificial Sequence

<220>

<223> HIV-1 mv3

<400> 20

attaattgta caagaccaa caacaataga agaagaaggt tatctatagg accagggaga	60
gcattttatg caagaagaaa cataatagga gatataagac aagcacattg taacattgaa	120
ttcattaatt gtacaagacc caacaacaat acaagaagaa ggttatctat aggaccaggg	180
agagcatttt atgcaagaag aaacataata ggagatataa gacaagcaca ttgtaacatt	240
ctgcagatta attgtacaag acccaacaac aatacaagaa gaaggttatc tataggacca	300
gggagagcat tttatgcaag aagaaacata ataggagata taagacaagc acattgtaac	360
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<210> 21

<211> 240

<212> DNA

<213> Artificial Sequence

<220>

<223> HIV-1 PND8

<400> 21

tctataggac caggagagc attttatgca tctataggac caggagagc attttatgca	60
tctataggac caggagagc attttatgca tctataggac caggagagc attttatgca	120
tctataggac caggagagc attttatgca tctataggac caggagagc attttatgca	180
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sequence listing

240

<210> 22
<211> 450
<212> DNA
<213> Artificial Sequence

<220>
<223> PVM-150/M

<400> 22
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gactgcgggtt gcccagccat catcgaggctc gataacgatg cccctaccaa gcgagccagc 120
aagctcttca gcgaattcga ggtcgataat gagcagccca ctacccgagc ccagaagctc 180
ttcgccatgt ggcgtatcac ttacaaggac aatgatgcgc caactaagcg cgcattctaaa 240
ctgtgcgtcc gaatctacat gaagcccaag cacgttcgat gtcctggctg tcccgtatt 300
atcgaagtgg ataacgacgc accaaccaaa cgggcatcaa agctggacaa ctaccagtcc 360
ccatgcgcga tcaacgagca acctaccacc cgtgcgcaaa agtccgctgg gtgcttctat 420
cagaccgcg tcgtgggttcc ctcagggttg 450

<210> 23
<211> 411
<212> DNA
<213> Artificial Sequence

<220>
<223> PVM-137/M

<400> 23
ttctaccaga cgcgagtggc tgtcccagac aacgaacagc cgactaccgc ggcaggccaa 60
gcctccaccg aaggcgactg cggttgccc gccatcatcg aggtcgataa tgagcagccc 120
actaccgcag cccagaagct cttcgccatg tggcgatca cttacaagga caatgatgcg 180
ccaactaagc gcgcatctaa actgtgcgtc cgaatctaca tgaagcccaa gcacgttcga 240
tgctccggct gtcccgtat tatcgaagtg gataacgacg caccaaccaa acgggcatca 300
aagctggaca actaccagtc cccatgcgcg atcaacgagc aacctaccac ccgtgcgcaa 360
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<210> 24
<211> 396
<212> DNA
<213> Artificial Sequence

<220>
<223> PVM-132/M

sequence listing

<400> 24
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gactgcgggtt gcccagccat catcgaggctc gataatgagc agcccactac ccgagcccag 120
aagctcttcg ccatgtggcg tatcacttac aaggacaatg atgcgccaac taagcgcgca 180
tctaaactgt gcgtccgaat ctacatgaag cccaagcacg ttcgatgctc cggctgtccc 240
gctattatcg aagtggataa cgacgcacca accaaacggg catcaaagct ggacaactac 300
cagtcccat gcgcgatcaa cgagcaacct accacccgtg cgcaaaagtc cgctgggtgc 360
ttctatcaga cccgctcgtt ggttcctca ggttgt 396

<210> 25
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV gag-100

<400> 25
attataccgc ggagcccgag aacattaaat g 31

<210> 26
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV gag-100

<400> 26
attattgccg gccactgga tttgttcac t 31

<210> 27
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV gag-114

<400> 27
ttaattccgc ggccagtaca acaaataagg t gg 32

<210> 28
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV gag-114

sequence listing

<400> 28
aatatagccg gccactgga ttgttcac tac 33

<210> 29
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV p27-167

<400> 29
atattaccgc ggccagtaca acaaataggt g 31

<210> 30
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV p27-167

<400> 30
ttaattgccg gcgtagaacc tgtctacata gct 33

<210> 31
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of SIV p27-150

<400> 31
tataatccgc ggccagtaca acaaataggt gg 32

<210> 32
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of SIV p27-150

<400> 32
aatattgccg gcatctagaa tgtttggttg gtta 34

<210> 33
<211> 32
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
 <223> sense primer for PCR amplification of SIV env-108

<400> 33
 ttaaataccgc ggacttctac ttggtttggc tt 32

<210> 34
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of SIV env-108/M

<400> 34
 tatattgccg gccaaattga ttttatcagt attg 34

<210> 35
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of HIV-1 env-98

<400> 35
 ataataccgc ggttaaattgg cagtctagca gaaga 35

<210> 36
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer for PCR amplification of HIV-1 env-98

<400> 36
 ataaatgccg gcggctattg ttttattcct aaatttttc 39

<210> 37
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer for PCR amplification of HIV-1 env-83

<400> 37
 taaataccgc ggttaaattgg cagtctagca ga 32

<210> 38
 <211> 33
 <212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> antisense primer for PCR amplification of HIV-1 env-83

<400> 38

attattgccg gcctgttgta aagtgttatt cca

33

<210> 39

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> sense primer for PCR amplification of HIV-1 env-71

<400> 39

aataaccgc ggctaaatga atctgtagta atta

34

<210> 40

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> antisense primer for PCR amplification of HIV-1 env-71

<400> 40

ataatagccg gcggctattg ttttattcct aaatt

35

<210> 41

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> sense primer for PCR amplification of HIV-1 env-98/M

<400> 41

agttcaggaa caagaccatc gcccgccgt atta

34

<210> 42

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> antisense primer for PCR amplification of HIV-1 env-98/M

<400> 42

tctccctaag cttgatcact atctgttgta aagtg

35

<210> 43

sequence listing

<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of PV 2-127

<400> 43
aatttaccgc gggcgctgac agccgtagag 30

<210> 44
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of PV 2-127

<400> 44
ttaatagccg gccttgccag ggatcggtgc 30

<210> 45
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of PV 2-118

<400> 45
attataccgc gggcttgtgt ggccattatt g 31

<210> 46
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of PV 2-118

<400> 46
ataatagccg gcggcaatgc ccacgtaggg 30

<210> 47
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of PV 3-110

<400> 47
ataataccgc ggcacgtagt ccaacgacgc 30

sequence listing

<210> 48
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer for PCR amplification of PV 3-110

 <400> 48
 aataatgccg gcagtgtagt cgtcccatga 30

 <210> 49
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer for PCR amplification of HCV core-160

 <400> 49
 ataataccgc ggatgagcac aaatcctaaa cc 32

 <210> 50
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer for PCR amplification of HCV core-160

 <400> 50
 ttaattgccg gcgtcctcca gaagccggac ac 32

 <210> 51
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer for PCR amplification of HCV core-100

 <400> 51
 aatataccgc ggatgagcac aaatcctaaa cctcaa 36

 <210> 52
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer for PCR amplification of HCV core-100

 <400> 52

sequence listing

atatttgccg gcgggtgaca ggagccatcc t 31

<210> 53
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of HBVsAg-100

<400> 53
atatatccgc ggcttctgga ctatcaaggt at 32

<210> 54
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of HBVsAg-100

<400> 54
ataaatgccg gcccatataa ctgaaagcca ga 32

<210> 55
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer for PCR amplification of HBVsAg-76

<400> 55
attattccgc ggatggagag catcgcacatca 30

<210> 56
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer for PCR amplification of HBVsAg-76

<400> 56
ataatagccg gcacacatcc agcgataacc 30

<210> 57
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(Sst II/ w2: 2608-2623) for PCR amplification of PV2,3-131

sequence listing

<400> 57
attaatccgc gggcgctgac agccgta 27

<210> 58
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(EcoR I/W2: 2800-2814) for PCR amplification of
PV2,3-131

<400> 58
atattagaat tcagttatct tccagactga 30

<210> 59
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(EcoR I/Leon: 2690-2707) for PCR amplification of
PV2,3-131

<400> 59
attatcgaat tcgagtccac aatagaatca 30

<210> 60
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(Eag I/Leon: 2958-2975) for PCR amplification of
PV2,3-131

<400> 60
attaatcggc cgttccatgt caaaacgaga 30

<210> 61
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(Sst II/W2 VP1: 253-269) for PCR amplification of
PV2,3-112

<400> 61
attaatccgc gggcttgtgt ggccattat 29

<210> 62

sequence listing

<211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer(BamH I/W2 VP1: 417-400) for PCR amplification of PV2,3-112

 <400> 62
 atattaggat cctgtaacca caaaggtgaa 30

 <210> 63
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer(BamH I/Leon VP1: 274-261) for PCR amplification of PV2,3-112

 <400> 63
 attatcggat ccgcgtgcgt cgctatt 27

 <210> 64
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer(Eag I/Leon VP1: 411-396) for PCR amplification of PV2,3-112

 <400> 64
 attaatcggc cgggttacca cgaaggtg 28

 <210> 65
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer(core-Sst II) for PCR amplification of HBVcs

 <400> 65
 aatataccgc ggttggtggtt tccatttcct 30

 <210> 66
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> antisense primer(core-Hind III) for PCR amplification of HBVcs

sequence listing

<400> 66
cctgggaatt ctctaacaac agtagtttc 29

<210> 67
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(surface-Hind III) for PCR amplification of HBVcs

<400> 67
atatatgaat tcccaggatc atcaaccacc 30

<210> 68
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(surface-Eag I) for PCR amplification of HBVcs

<400> 68
ataatagccg gcttttgcga aagcccaaga tga 33

<210> 69
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(BamH I-V3) for PCR amplification of HIV-1 mV3

<400> 69
accggtgctc cactgctgtt aaatggcagt 30

<210> 70
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(EcoR I-V3) for PCR amplification of HIV-1 mV3

<400> 70
ctacagaatt caatgttaca atgtgctt 28

<210> 71
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(EcoR I-V3) for PCR amplification of HIV-1 mV3

sequence listing

<400> 71
ctacagaatt cattaattgt acaagacc 28

<210> 72
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(V3-PstI) for PCR amplification of HIV-1 mV3

<400> 72
caagtctgca gaatgttaca atgtgctt 28

<210> 73
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(PstI-V3) for PCR amplification of HIV-1 mV3

<400> 73
caagtctgca gattaattgt acaagacc 28

<210> 74
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> antisense primer(V3-Hind III) for PCR amplification of HIV-1 mV3

<400> 74
gcattaagct taaatgttac aatgtgcttg tc 32

<210> 75
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> sense primer(SstII-V3) for PCR amplification of HIV-1 mV3

<400> 75
aggcctccgc ggattaattg tacaagacc 29

<210> 76
<211> 29
<212> DNA
<213> Artificial Sequence

sequence listing

<220>
 <223> antisense primer(V3-EagI) for PCR amplification of HIV-1 mv3

<400> 76
 aggcctcggc cgaatgttac aatgtgctt 29

<210> 77
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer(PND) for PCR amplification of HIV-1 PND8

<400> 77
 cagaggggac caggagagc atttgttaca 30

<210> 78
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer(PND) for PCR amplification of HIV-1 PND8

<400> 78
 cctctgtgta acaaatgctc tccctggtcc 30

<210> 79
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> sense primer(SstII-PND) for PCR amplification of HIV-1 PND8

<400> 79
 aggcctccgc ggcagagggg accaggg 27

<210> 80
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> antisense primer(PND-EagI) for PCR amplification of HIV-1 PND8

<400> 80
 aacgttcggc cgtgtaacaa atgctctccc 30

<210> 81
 <211> 77
 <212> DNA

sequence listing

<213> Artificial Sequence

<220>

<223> primer 1/Sst II for ligation-free PCR amplification of PVM-150 and PVM-150/M

<400> 81

attataccgc gggctaaggc cgttgagcc tggaccctga aagccgctgc aggccaagcc 60

tccaccgaag gcgactg 77

<210> 82

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 2 for ligation-free PCR amplification of PVM-150

<400> 82

gctggctcgc ttgtagggg catcggtatc gacctgatg atggctgggc aaccgcagtc 60

gccttcggtg 70

<210> 83

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 3 for ligation-free PCR of PVM-150

<400> 83

accaagcgag ccagcaagct cttcagcgaa ttcgaggctg ataagtagca gccactacc 60

cgagcccaga 70

<210> 84

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> primer 4 for ligation-free PCR amplification of PVM-150

<400> 84

cgcttagttg gcgcatcatt gtccttgtaa gtgatacgcc acatggcgaa gagcttctgg 60

gctcgggtag 70

<210> 85

<211> 70

<212> DNA

<213> Artificial Sequence

sequence listing

<220>
 <223> primer 5 for ligation-free PCR amplification of Pvm-150

<400> 85
 tgcgccaact aagcgcgcat ctaaactgtg cgtccgaatc tacatgaagc ccaagcacgt 60
 tcgatgctcc 70

<210> 86
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer 6 for ligation-free PCR amplification of Pvm-150

<400> 86
 ttgatgcccg tttggttggt gcgtcgttat ccacttcgat aatagcggga cagccggagc 60
 atcgaacgtg 70

<210> 87
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer 7 for ligation-free PCR amplification of Pvm-150

<400> 87
 ccaaacgggc atcaaagctg gacaactacc agtcccatg cgcgatcaac gagcaaccta 60
 ccacccgtgc 70

<210> 88
 <211> 82
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer 8/Eag I for ligation-free PCR amplification of Pvm-150

<400> 88
 tattaacggc cgacaacctg aggggaaccac gacgcgggtc tgatagaagc acccagcgga 60
 cttttgcgca cgggtggtag gt 82

<210> 89
 <211> 70
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer 2 for ligation-free PCR amplification of Pvm-150/M

sequence listing

<400> 89
actggcacgc tttgttgag catcattatc cacttcaata atggctgggc aaccgcagtc 60
gccttcggtg 70

<210> 90
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 3 for ligation-free PCR amplification of PVM-150/M

<400> 90
acaaagcgtg ccagtaaatt attcagcgaa ttcgaggtcg ataatgaaca accaaccacc 60
cgggcacaga 70

<210> 91
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 4 for ligation-free PCR amplification of PVM-150/M

<400> 91
cgctttgttg gagcatcatt atccttgtaa gtgatacgcc acatggcgaa gagtttctgt 60
gcccgggttg 70

<210> 92
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 5 for ligation-free PCR amplification of PVM-150/M

<400> 92
tgctccaaca aagcgtgcca gtaaattgtg cgtccgaatc tacatgaagc ccaagcacgt 60
tcgatgctcc 70

<210> 93
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 6 for ligation-free PCR amplification of PVM-150/M

<400> 93
tactggcacg ctttgttgga gcatcggtat ccacttcaat aatggcgagg cagccggagc 60

sequence listing

atcgaacgtg

70

<210> 94
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 7 for ligation-free PCR amplification of PVM-150/M

<400> 94
caaagcgtgc cagtaaatta gacaactacc agtcccatg cgcgatcaat gaacaaccaa 60
ccaccgggc 70

<210> 95
<211> 82
<212> DNA
<213> Artificial Sequence

<220>
<223> primer 8/Eag I for ligation-free PCR amplification of PVM-150/M

<400> 95
tattaacggc cgacaacctg agggaaccac gacgcgggtc tgatagaagc acccagcgga 60
tttctgtgcc cgggtggttg gt 82